

Claims

1. Method for increasing plant yield relative to corresponding wild type plants, comprising introducing into a plant a nucleic acid encoding a D-type Cyclin Dependent Kinase (CDKD).
- 5 2. Method according to claim 1, wherein said increased yield is increased seed yield.
3. Method according to claim 1 or 2, wherein said increased yield is selected from the group consisting of (i) increased biomass of one or more parts of a plant; (ii) increased seed biomass; (iii) increased number of (filled) seeds; (iv) increased seed size; (v) increased
10 seed volume; (vi) increased harvest index; and (vii) increased thousand kernel weight (TKW).
4. Method according to any one of claims 1 to 3, wherein said nucleic acid encodes a CDKD or a functional variant thereof and wherein said nucleic acid is obtained from a plant.
- 15 5. Method according to any one of claims 1 to 4, wherein said nucleic acid encoding a CDKD is represented by SEQ ID NO: 1 or is a functional variant thereof and wherein the CDKD polypeptide is represented by SEQ ID NO: 2 or is a functional variant thereof, which functional variant is selected from the group consisting of:
20 (i) Portions of a nucleic acid represented by the sequence of SEQ ID NO: 1;
(ii) Sequences capable of hybridising to a nucleic acid represented by the sequence of SEQ ID NO: 1;
(iii) Alternative splice variants of a nucleic acid represented by the sequence of SEQ ID NO: 1;
25 (iv) Allelic variants of a nucleic acid represented by the sequence of SEQ ID NO: 1; and
(v) Homologues, derivatives and active fragments of an amino acid represented by the sequence of SEQ ID NO: 2.
- 30 6. Method according to any one of claims 1 to 5, wherein said nucleic acid sequence encoding a CDKD is overexpressed in a plant.
7. Method according to any one of claims 1 to 6, wherein expression of said nucleic acid encoding a CDKD is driven by a constitutive promoter.
- 35 8. Method for the production of a transgenic plant having increased yield, which method comprises:

- (i) introducing into a plant or plant cell a CDKD-encoding nucleic acid or a functional variant thereof
- (ii) cultivating the plant cell under conditions promoting regeneration and mature plant growth.

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9. Method according to claim 8, wherein said increased yield is increased seed yield.

10. Method for increasing plant yield, especially seed yield, comprising introducing a genetic modification into a plant in the locus of a gene encoding a CDKD polypeptide or a functional variant thereof.

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11. Method according to claim 10, wherein said genetic modification is effected by one of: site-directed mutagenesis, homologous recombination, tilling and T-DNA activation.

12. Plants obtainable by a method according to any of claims 1 to 11.

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13. Construct comprising:

- (i) a CDKD-encoding nucleic acid or a functional variant thereof;
- (ii) one or more control sequence capable of driving expression of the nucleic acid sequence of (i); and optionally
- (iii) a transcription termination sequence.

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14. Construct according to claim 13, wherein said control sequence is a constitutive promoter.

15. Plant transformed with a construct according to claim 13 or 14.

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16. Transgenic plant having increased yield, characterised in that said plant comprises an isolated nucleic acid encoding a CDKD or a functional variant thereof.

17. Transgenic plant according to claim 12, 15 or 16, wherein said plant is a monocotyledonous plant, such as sugar cane or wherein said plant is a cereal, such as rice, maize, wheat, barley, millet, rye, sorghum or oats.

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18. Harvestable parts of a plant according to any one of claims 12 or 15 to 17.

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19. Use of an isolated nucleic acid encoding a CDKD or a functional variant thereof in increasing yield, especially seed yield.

20. Use according to claim 19, wherein said seed yield includes one or more of the following:
increased number of filled seeds, increased seed weight, increased harvest index and
increased TKW.

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21. Use according to claim 19 or 20, wherein said CDKD is a nucleic acid as represented by
SEQ ID NO: 1 or a functional variant thereof, or wherein said CDKD is an amino acid as
represented by SEQ ID NO: 2 or a functional variant thereof.

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